SMART GRID

MSc HESS hybrid energy supply system makes it easy to create an independent microgrid by connecting available energy sources such as solar panels, generator and batteries. MSc Electronics has vast experience in designing power electronics applications for 35 years. System is based on the well proven converter technology developed by MSc.

Single unit has the rating for 50 kW but you can connect up to 8 modules in parallel to reach the rating of 400 kW. Unit can handle even 100% unbalanced load as well as non-linear loads for maximum reliability.

Subject to change without notice (19.12.2019)

HYBRID ENERGY SUPPLY SYSTEM (MSc HESS)

TECHNICAL DATA

MODEL	MSc HESS
General data	
Nominal output power (continuous)	50kW, 70kVA, 100Aac rms
Maximum PV-input current	80A
Maximum battery converter current	80A (180A as option)
Maximum AC-input current	85 Aac rms
PV-input	
Max. PV open circuit voltage	900 Vdc (nominal 750Vdc)
MPPT operating range	200-750 Vdc
PV input current protection	Yes
PV input surge voltage protection	Yes (includes internal protection)
Generator/grid input	
Nominal input voltage	380-440Vac, 50/60Hz, 3-phase
Voltage tolerance	+/- 10%
Frequency tolerance	35-72Hz
AC-input overcurrent protection	Yes
AC-input surge voltage protection	Yes (includes internal protection)
Battery input	
Nominal battery voltage (typical)	35- 750Vdc
Battery type (other types possible)	VRLA, Ni-Cd, Li-ion, Supercaps, …
Output	
Nominal output voltage*	380-460Vac, 50/60Hz, 3-phase+N
Rated continuous output current (I_n)	100 Aac rms
Max. overload current (I_h , 60 sec.)	1,5 * I_n
Max. output current (I_{pk})	230A
Voltage accuracy	Steady state +/-2%
Max. allowed phase imbalance	100% (phase independent regulation)
Harmonic distortion	THD < 1%, linear loads
Galvanic isolation	Between grid and power input
Protections	overload and over current protection (phase ind.)
Efficiency	
Max PV → Battery	η > 94 %
Max Generator→ Load	η > 93 %
User Interfaces	
HMI	7 inch display for parameter setup and monitoring
Remote monitoring / control	CAN bus (other buses optional)
Enviroment	
Nominal ambient (cooling air) temperature	-10°C (no frost) – 40°C
Max. ambient cooling air) temperature	50°C (with de-rating, 1%/1°C)
Altitude	100% load capacity (no derating) 1000m
Humidity	RH < 95%, non-condensing, non-corrosive
Mechanical data	
Dimensions (W x H x D) (mm)	1030 x 2330 x 750
Weight (kg)	600 kg
Cooling	Forced air cooling
Protection class	IP31

According to norms: EN 50160 (Grid quality), EN62477 (Safety), EN61000-6-3 (EMC), EN61000-6-2 (EMC